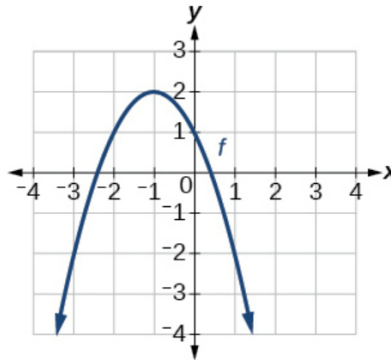


Exercise 43

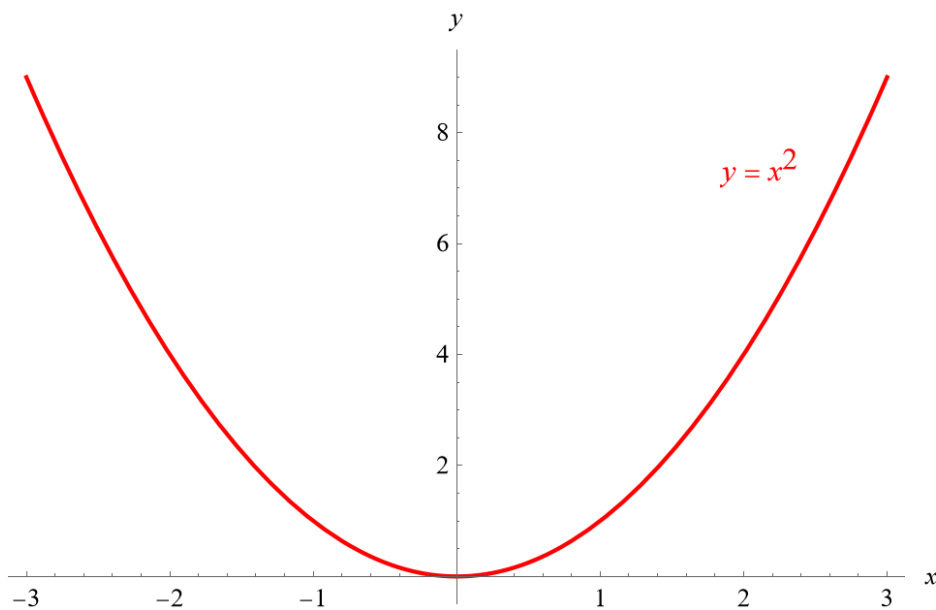
For the following exercises, use the graphs of the transformed toolkit functions to write a formula for each of the resulting functions.



Solution

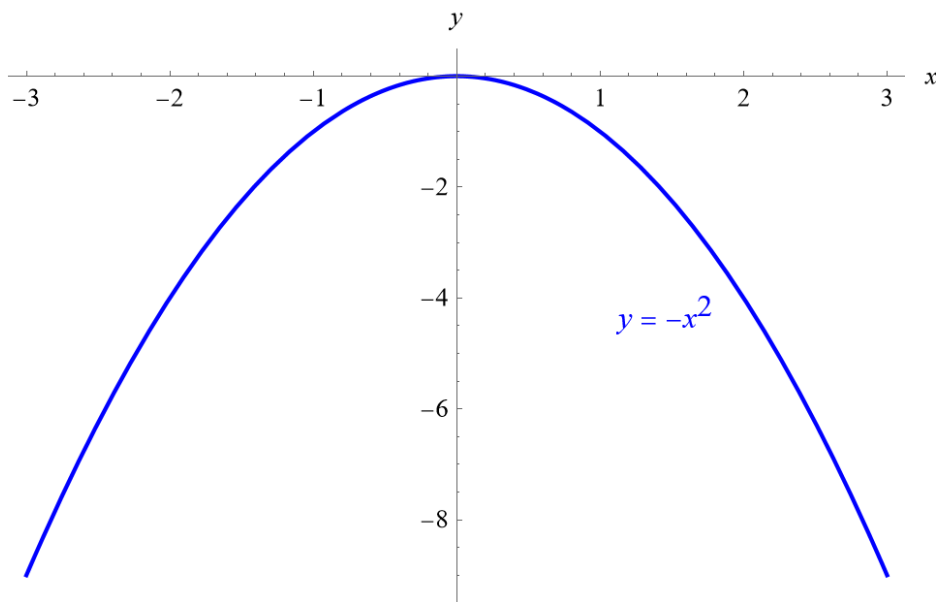
This is a parabola that's been reflected over the x -axis, shifted to the left by 1 unit, and shifted up by 2 units. Start with the function of a standard parabola.

$$y = x^2$$



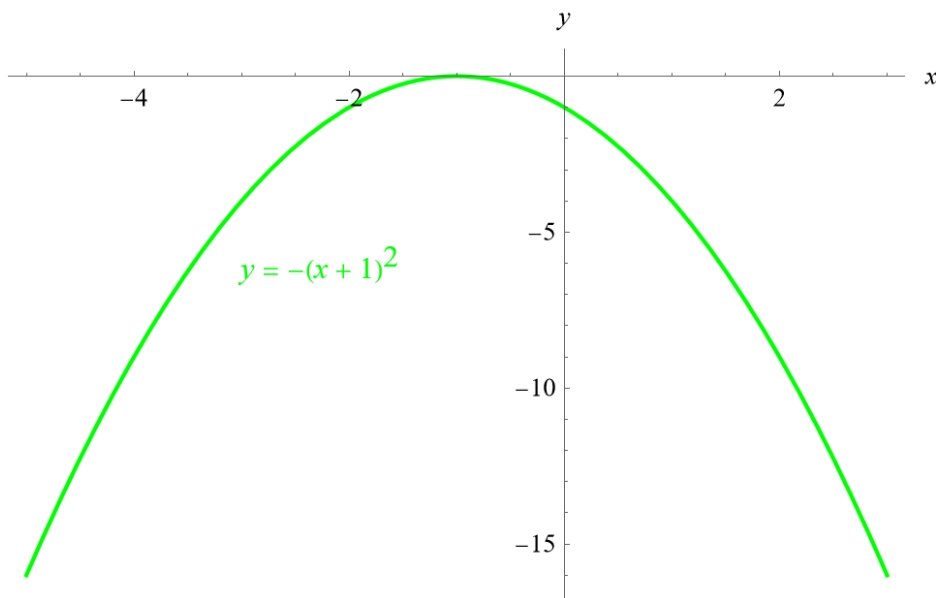
Reflect it over the x -axis.

$$y = -x^2$$



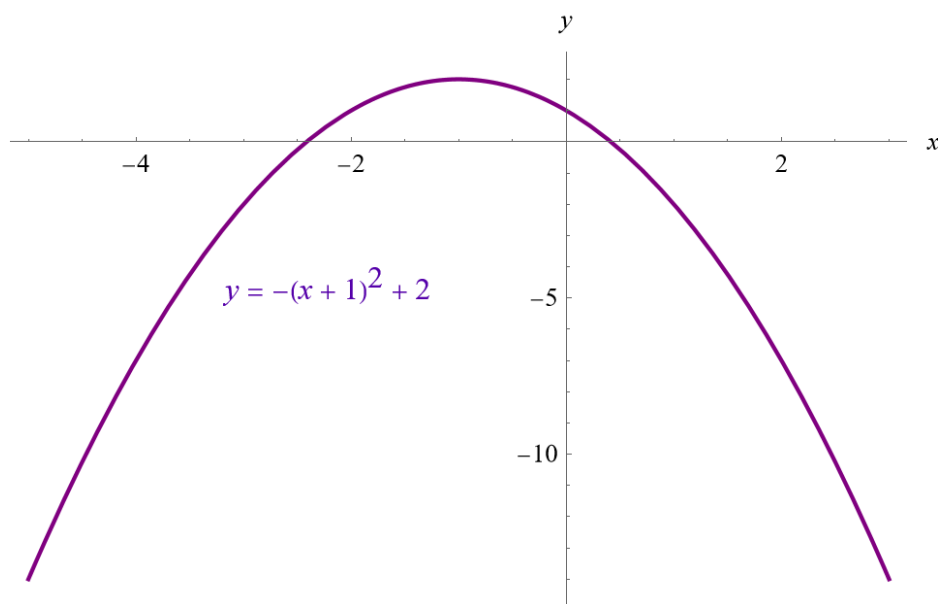
Shift it to the left by 1 unit.

$$y = -(x + 1)^2$$



Shift it up by 2 units.

$$y = -(x + 1)^2 + 2$$



$$f(x) = -(x + 1)^2 + 2$$